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The role of fullerene shell upon stuffed atom polarization potential MIRON AMUSIA, Racah Institute of Physics, Hebrew University, LARISSA CHERNYSHEVA, Ioffe Institute — We have demonstrated that the polarization of the fullerene shell considerably alters the polarization potential of an atom, stuffed inside a fullerene. This essentially affects the electron elastic scattering phases as well as corresponding cross-sections. We illustrate the general trend by concrete examples of electron scattering upon endohedrals that are formed when Ne and Ar atom are stuffed inside fullerene C60. To obtain the presented results, we have suggested a simplified approach that permits to incorporate the effect of fullerenes polarizability into the endohedrals polarization potential. By applying this approach, we obtained numeric results that show strong variations in shape and magnitudes of scattering phases and cross-sections due to effect of fullerene polarization upon the endohedral polarization potential. Using concrete examples we have demonstrated that the elastic scattering of electrons upon endohedrals is an entirely quantum mechanical process, where addition of even a single atom can qualitatively alter the multi-particle cross-section.

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